DOCUMENT RESUME

ED 244 697 JC 840 295

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TITLE From Industry to Assignment: Developing Curriculum through Industry Liaison.
PUB DATE May 84
NOTE 38p.; Paper presented at the Joint Conference of the Canadian Vocational Association and the Association of Canadian Community Colleges (Vancouver, British Columbia, May 28-31, 1984).
PUB TYPE Speeches/Conference Papers (150) -- Reports - Descriptive (141) -- Viewpoints (120)

EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS Community Colleges; Cooperative Programs; *Curriculum Development; *Industrial Education; *Learning Activities; *School Business Relationship; *Teacher Developed Materials; Two Year Colleges; *Writing Exercises

ABSTRACT

Responding to the increasing use of the DACUM (Developing A Curriculum) process as a means of meeting industry demands for relevant curricula, this paper describes an approach supplementing DACUM with direct contact with industry. Following introductory material on the increasing emphasis on meeting industry's needs for training, discussions are provided of the DACUM process, the barriers to using DACUM, and DACUM's limitations with respect to providing detailed guidance. The next section suggests that the DACUM group workshop approach be modified by specific needs assessments and personal contacts with business representatives. Four methods of obtaining industry input are then discussed: group interviews, advisory committees, survey questionnaires, and individual interviews. The next section offers advice on developing industry contacts. The following sections highlight the kinds of assistance in course and assignment development that instructors can gain through industry contacts, stressing the importance of confidentiality and the role of the industry contact as advisor. Next, suggestions are provided on modifying industry materials for use as course assignments. Finally, the benefits of industry contacts are discussed. Appended materials include a worksheet on transforming an industry sample into a course assignment and examples of assignments based on actual industry situations. (HB)

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FROM INDUSTRY TO ASSIGNMENT:

DEVELOPING CURRICULUM THROUGH INDUSTRY LIAISON.

Jean Scribner
British Columbia Institute of Technology

Presented at the Joint Conference of the
Canadian Vocational Association and the
Association of Canadian Community Colleges
(Vancouver, British Columbia, Canada,
May 28-31, 1984).

TC 840 295

"FROM INDUSTRY TO ASSIGNMENT: DEVELOPING CURRICULUM THROUGH INDUSTRY LIAISON"

Jean Scribner, B.C. Institute of Technology

Most industry trainers will agree that conducting a thorough needs assessment is the first step in designing a course. Yet, how many post secondary course designers take this approach? When I first started teaching, no one gave me advice on curriculum planning. I resorted to doing what everyone else seemed to do: I followed previous course outlines and got assignments from other instructors or from books.

The thought of going outside of academia for advice on course content was seen to be unorthodox. What would become of academic freedom if we allowed the captains of industry to dictate what we would teach! Furthermore, where would the time be found to do needs assessments in industry? The usual practice has been to go to other educational institutions for direction on curriculum matters, whereas we should be going to our clients: to the people who employ our students!

Things are changing in this regard, particularly in career and technical programs. Greater emphasis is given to making courses suited to industry's needs. Many of us have begun to accept that colleges and institutes should "liaise" with industry to develop "relevant" curriculum. Provinces have devoted resources to doing needs assessments and colleges and institutions have had to respond to these increased demands for relevancy and currency. One thing, however, has stayed the same: instructors are still short of time and many of us have had to make (or are in the process of making) a radical change in our approaches to course development.

Quality control is still the responsibility of instructors, but industry liaison can offer instructors tremendous resources. These resources are especially valuable for instructors who have academic as opposed to industry backgrounds, and who teach service courses in academic subjects in career programs.

In Canada, and particularly in B.C. training programs, we've seen the Dacum process emerge as a method of meeting industry demands for relevant curriculum. However, Dacum by itself is not enough. For successful, relevant course design instructors have to have more information from industry than a Dacum analysis can provide.

In my talk today, I'm going to explain what I'd call a "Dacum Plus" approach by looking at:

1) what's missing from Dacum
2) the benefits of industry contact for instructors
3) ways to get industry input
4) how to develop assignments from industry resources
5) the significant benefits for an instructor using industry based assignments.

Dacum

The Dacum (designing a curriculum) process consists of

1. gathering information on the skills required for specific jobs by
   - holding group workshops with industry representatives, and
   - plotting these skills on skill profile sheets
2. translating these skills into learning objectives
3. using these objectives to design the curriculum.

In many ways, the process is analogous to "management by objectives". For efficiency, Ministry of Education officials often do parts one and two, while instructors usually do part three. However, if the instructors receive course information third hand, they miss valuable opportunities for developing realistic, industry-based situations for the problem solving parts of their courses.

Dacum's not Enough

Dacum's focus on learning skills through learning objectives has resulted in some very successful training courses. However, four major problems still face instructors and administrators who would like to use Dacum to design or revise curricula:

1. lack of resources and funds
2. time constraints
3. lack of currency
4. limits on the amount of detail covered.

Lack of resources and funds is almost a cliche now in B.C. The Province offers over 400 vocational/technical programs, and the Ministry and individual institutes can't provide enough resources to do Dacum for all these programs. As administrators, we agree industry liaison is desirable, but we often don't have sufficient resources or funds to do it as extensively as we would want or need to.

Lack of time is a constraint for both administrators and instructors. Even if the Dacum researchers have many industry contacts, matching schedules and organizing meetings is a very complex process. Often, a coordinator has to be hired just to facilitate this process. Larger class size and increased workload reduce the time available for instructors to participate.

Since it costs so much in time and money for the extensive process Dacum requires, institutions can't afford to do frequent Dacum analyses. Furthermore, Dacums may become dated due to rapid changes in technology. To keep our courses current, we may have to supplement an existing, out-of-date needs assessment or we may have to do our own modified versions of Dacum. In many instances, the full scale analysis may be unnecessary. Instructors may be satisfied their course outlines are workable, but they still want new ideas or materials for assignments.

From the instructor's point of view, the fourth problem of limits on the detail covered in a Dacum is the most important one. The Dacum analysis will give guidelines for curriculum design, but often it does not give the level of detail the instructor requires to develop the content for exercises and assignments. The analysis gives the instructors a list of required and desirable skills, but it doesn't provide course and assignment content. The result is that instructors are confronted with specific demands to work "relevance" into their courses, but often don't have the resources to do it. And here is where many of us find ourselves: as instructors, we are being asked to design skills-oriented, relevant, industry-based courses within the familiar constraints of little time and limited resources.

Dacum Plus

So what can we do about this predicament? If we're already doing Dacums, we can add to these or extend them by working on an individual basis as instructors "in search of assignments". By all means, let's have Dacum, plus our own efforts! Since general needs assessments can't supply us with enough detail to develop the course content, we can supplement this valuable source of information by doing our own specific needs assessment. If the college or institution is not doing industry needs assessments, we can modify the Dacum group workshop approach by making our own contacts . By visiting industry representatives in their offices, we can collect examples, assignment ideas and background knowledge useful for designing assignments for specific career programs. We can, quite simply, find out exactly what our students will need to be able to DO when they graduate from our programs. We can roll up our sleeves and get our hands dirty by doing our research in industry!

How to Get Industry Input

Educational institutions have a number of ways to seek industry input. Four of these are:

1. group interviews (similar to Dacum workshops)
2. advisory committees
3. survey questionnaires
4. individual interviews.

The first two methods are best initiated by administrators because they require extensive institutional commitment and resources. Institutions can arrange to have ad hoc committees struck to form or give guidance on curriculum. In these committees, groups of industry representatives meet with college instructors and administrators to discuss curriculum priorities. If these committees can be retained on a permanent basis as standing advisory

committees, the institution gains a very valuable source of contacts in addition to quick access to curriculum content and advice.

Questionnaires and personal interviews are the most useful for individual instructors because they

- can be organized on an individual basis,
- don't involve complicated scheduling arrangements, and
- have fairly immediate, accessible results.

I'd like to focus on these methods because they are practical, manageable and best suited for gathering information for assignments.

Using Questionnaires

Questionnaires are useful tools for gathering specific details about the tasks your students will be doing in the workplace. You might wish to mail a questionnaire to a large number of industry representatives to identify topics they feel should be included in a course. If you design your questions to be specific enough, you could also gather details about typical work situations to give you contexts for case study scenarios or any other kinds of assignments. If you want the questionnaire to provide assignment ideas, be sure to ask for descriptions of typical situations and projects the graduate/employee is involved in. Leave lots of space for these descriptions.

One of the big drawbacks with mail questionnaires is, of course, the low response rate. Busy supervisors naturally may not assign your questionnaire a high priority.. Questionnaires don't provide opportunities to follow up or draw out more specific examples. For these reasons, I've found it's much more productive to design a questionnaire to use in a personal or telephone interview.

I have developed a detailed questionniare form to use when I make industry visits to design a new course. Since I need to know what kind of communication skills are required on the job, I have sections on my form which cover job duties, types of reports, letters, meetings, presentations, and telephone skills. For each category, I check possible types and provide space for examples of typical situations. I use this questionnaire to guide the interview. An example of one of these sections (Example #1) is in Appendix I. The complete form is available if you write to me at the English Department at B.C.I.T..

Conducting Personal Interviews

Interviewing industry representatives in-house offers the richest and most immediate rewards to instructors in search of assignments. By visiting an office or shop floor, the instructor not only gets a concrete picture of his students' future work environment, but also gets a chance to look at the products of that work. Sometimes, after answering your questions and getting to know you, the interviewee will give you samples of the company's projects, reports and correspondence. These samples are potential assignments. Because personal interviews are interactive, you can probe for specific detail and follow up on assignment ideas using the interviewee as a brainstorming partner. Wait a minute, you say: industry people are busy; why would they be willing to spend time helping college instructors with assignments?

You may be surprised by how commited people from industry are to the goals of education and training. First, industry has an interest in producing top quality graduates. Our students are their future employees. Second, if you have a prepared questionnaire, you can get the information you need in an

efficient twenty minutes to one half hour. By asking for a short interview, you make it hard to refuse. Once your contact begins to discuss his/her job, you'll notice a positive response to your interest. Many people who enjoy their work, enjoy sharing it with someone who is interested!

Your next question might be, how do I ensure I've got an interview with the right person? After all, you want to talk to people who are interested in their job, in your college's program development and who are appropriate authorities in your subject area. How in fact do I make contacts if I have no leads ?

How to Develop Industry Contacts

Like all research, you have to look through a lot of sources to find exactly what you want. If you've recently come from industry to teach in a college or institute, you probably have plenty of contacts. If you've been out of industry for a few years, chances are many of your contacts have moved or transferred. Or, perhaps you have an academic background and you've only recently begun teaching in a career/technical program. All of us need to strengthen our industry ties. The process of doing so is similar to making strong social friendships: you can't be shy, and it takes time.

The first step is to commit yourself to calling total strangers and introducing yourself. You can find companies related to your field in the Yellow Pages. Next you call their personnel departments and tell them you're looking for a line supervisor who is familiar with the work your graduate might do in the company. Explain your project and emphasize you

want to interview someone who works directly with those employees who have backgrounds similar to your students. It may be the company doesn't employ people with backgrounds in your subject area. If not, try another company.

Many times you will be referred to personnel officers, but be persistent and track down first line supervisors instead. While personnel officers can describe the duties, tasks and skills required of graduates, they can't offer you the same detailed descriptions of situations that arise on the job. And it is these details that give you assignment ideas. Three or four telephone calls inside one company may be required to find one line supervisor who works with your graduates.

The next step is calling the supervisor. You should:

1. introduce yourself and your course or program
2. explain what you are doing and why
3. mention you are surveying other employers too
4. ask for only 15 or 20 minutes of his/her time
5. suggest a Friday morning interview (have several alternates and allow a couple of weeks flex).

If you happen to reach people who are too busy to see you, ask them to recommend someone else in their company. Other sources of contacts are advisory committees (if your institution uses them), colleagues and administrators in your college. It also may be useful to look in the library for directories of professionals and manufacturers in your area.

You Don't Have Time?

One of the objections to doing industry visits is that it takes a lot of time. It does require time, but look at it as time invested. If you do thorough research when you are designing your course and assignments, you'll spend far less time on "repair jobs" later. Although it may take a morning on the telephone to arrange a few days of visits, you'll come back with ideas for a year's worth of assignments. Furthermore, when you go to industry to do your research, you come back with the confidence that your course is relevant and current. This confidence saves you a great deal of stress and self-doubt during the year.

How to Find Assignments in Industry

Once you are in the interview, use your survey questionnaire to determine the skills required for the job. Ask for examples of typical work situations and ask to see projects, reports, and any kind of documentation which will give you a clear idea of the kind of work your graduates do. Ask lots of questions about the projects and if you can have copies of any materials. Take away as much paper as you can. Not all of it will be useful, but you can sort through it later. And you'll be surprised how useful some apparently useless sources are. For example, one of my assignments came from an engineer's wastepaper basket. He was emphasizing a point about his staff's writing habits and in doing so, pulled an example out of his garbage can. I had a look at it and said: "I can use that in my course to help prevent future employees from making the same mistake. Do you mind if I take it with me?" It sounds corny, but it worked, and it became a very effective assignment.

Confidentiality

It's a good idea to wait until the end of the interview to ask for material because the interviewee must trust you to protect the company's interests. I volunteer to change all the names and places mentioned in any of the samples given to me and sometimes I offer to send the assignment I make back to the interviewee so he/she can check it for confidentiality.

Industry Contact as Advisor

An additional benefit comes from sending the assignment back to the industry contact: I get valuable input on my assignments. If I've omitted necessary details or need a "realism" check, my contact can help me: he becomes my industry advisor. This collaboration is especially useful if you develop a longer or multi-tiered set of assignments that involve role playing. For example, in developing a communication course for safety professionals, I interviewed the safety manager of a large company. He mentioned safety officers often find themselves caught between management and labour. I said I was looking for a controversial topic to use in a problem-solving meeting. He suggested a problem from his own company: the company was about to go to arbitration over a problem that started as a safety issue. It sounded perfect. Apparently, workers walked off the job believing that what they'd been ordered to do was unsafe. The Workers Compensation Board (WCB) had been called in (my students are training for jobs as safety or WCB officers), a ruling had been made and the safety officers had to negotiate with the union, management, and the WCB.

I took this scenario back to my office, did some thinking about what my objectives were and decided to make a multi-tiered assignment in which

students would be writing memos, making recommendations and finally, conducting a meeting to attempt to resolve the issue. My objectives included not only writing and meeting skills but also decision-making and problem-solving. I also wanted them to learn about reporting structures and communication channels in a large organization. Here was an ideal way to introduce them into the course. Now, however, I had to go back to the company because I needed a lot more detail.

I called a few other departments in the company and through a contact got a number of memos on the issue. I used these to write a series of roles for the meeting and meeting correspondence. At several stages I had to go back to the company to get more details, add more "realism" and make sure the confidentiality of the company and individuals was protected.

My main contact in the company not only helped me write the roles (and enjoyed the novelty of it), but also volunteered to talk to students about their roles, and even arranged to have a demonstration of the safety problem on campus if the students needed more technical information. Needless to say, the students were very enthusiastic about the project and most of them got into the role play far beyond what was required for the course. The project's success was due not just to my work with my industry contact, but with his work with me as my industry advisor. We had an educational/industrial partnership.

What to Look For

It helps to have some idea of what you're looking for. But remember, you may

have two purposes for your visit. If you are in the process of designing a course, you're in industry to identify skills which will later be translated into learning objectives. If you have those learning objectives already defined, you're looking for a context to put them into practice. You may, for example, start out the interview by saying: "I know that graduates have to be able to write progress reports, and I'm looking for a typical project that I can use to provide a scenario. I'd like my students to write a progress report about a "real" set of events. Can you give me some examples of the kinds of projects that you write progress reports on in your company?"

What kinds of assignments are you likely to find? That depends on the kind of course and skills you teach. I've found four ways to use industry materials in my courses:

1. Found Assignments. These assignments are used "as is." For example, I might find both a poorly written memo and an improved version. I simply give the poor memo to my students to rewrite and then show them the model. All I have to do is change the names to protect the company and original writers. These found assignments are useful when my objectives are to have students revise, reorganize, or identify poor tone and phrasing . (The Disinfection of Wells, Example #2)

2. Lift & Scramble Assignments. In these assignments I extract detail from a sample collected from industry, scramble the order of information and add irrelevant detail. I would use this type of assignment when the skills we're working on are selecting and

organizing information. (Inspection of Pete's Pizza, Example #3)

3. Dialogue Translations. In some instances I take an idea from a sample, and write a case study by putting the details into casual dialogue. By doing this I can add "atmosphere" and give the student a realistic context. By putting the content into dialogue, you avoid the student having "good text" to copy out and hand back to you. In the O'Brien Library Investigation case I took a sample report and worked backwards to deconstruct the recommendation. The students' job was to organize the report and select the correct details to support the recommendation. They were to practise putting together an investigation report. (O'Brien Library Investigation, Example #4)

So far, in all three of these examples most of the assignment content is given to the students. In the early segments of the students' training, they may not have the technical knowledge to supply the content. In more advanced courses they can be asked to supply a larger portion of the content

4. Sherlock Holmes Assignments. The example I gave earlier of the meeting role play illustrates what I'd call the Sherlock Holmes approach. Here the instructor has to track down the information through a series of telephone conversations and industry visits. The instructor provides data for the student to analyse and make decisions without involving the time-locked student in a lot of travel and without having industry inundated by fact-seeking

students. In the Metropolis Rats example, I interviewed a local Health Officer for data on his district's vector control problem. These statistics were used by my students to make recommendations for a fictitious district.

During some portions of my course, I do however send students out to do their own industry visits, but that's a subject for another talk. If you'd like a closer look at any of the assignments I've mentioned today, please write to me and I'll send them to you.

How to Transform the Sample into an Assignment

The first step in structuring an assignment from an idea or sample you pick up in industry is to define your instructional objective. What exactly do you want your students to be able to do by completing your assignment? Which skills do you want them to master? Once you've listed the skills you want to develop and test, list the tasks that the student will have to perform to achieve these skills.

Your next question is what context or activity would allow the students to develop and practice these skills? Where would they encounter this context in a "real life" situation? The answers to these questions should give you the assignment and format. For example, in the Pete's Pizza inspection example, I was interested in the communication skills of organizing an inspection report. So, I made the assignment a written letter reporting inspection results. If I were teaching how to do an inspection, my assignment would have been quite different. I may have used the inspiration

to arrange an on-site inspection of a pizza parlour. Had I been teaching interpersonal communication skills, I may have used the situation of an irate restaurant owner meeting a public health inspector for an role play on overcoming objections.

Once you have clarified for yourself why the students are doing the assignment, write a rationale explaining to the students how they will benefit. Also, add specific learning objectives so they know exactly what to expect. You can use these objectives as evaluation criteria. In this way, the student can measure his/her progress according to announced standards. Incidentally, industry liaison can contribute in this area too. Have a look at those samples for what is acceptable as "good" work. While you may not always find ideal examples, you at least have a yardstick to measure your own standards by.

Your next questions should be "how much do my students know about this subject? How much detail will I have to give them to do what I want them to do in this assignment?" You can then go to your sample and extract the detail you'll need to include. You may also discover that you don't have enough information and you'll need to go back to your orignial source or to other resources.

If you follow this approach, you should be able to develop realistic assignments that put students into the role of being real problem-solvers. Nothing inspires students more.

Benefits of Industry Contacts

As we've discussed, if instructors can take the needs assessment one step

further than the Dacum process allows by making personal industry visits, a wealth of resources is available to them, administrators and students. The Dacum Plus approach of making individual industry contacts supplies instructors with:

- scenarios for case studies,
- examples of reports,
- situations for projects,
- anecdotes for lectures,
- guest speakers, and
- "reality" checks for course content and assignments.

Developing industry contacts to use for both needs assessments and currency updates costs time but repays in significant benefits not just for instructors, but also for administrators. Today's students want quality and currency for their educational dollar. Developing curriculum through industry liaison is one of the best ways institutions can guarantee they will get it.

Part Two: Workshop: "Making An Assignment from an Industry Sample"

In the next half hour I'd like you to get into groups and create some assignments from sample scenarios and documents. I have a couple of choices to offer you and perhaps we might want to split into groups of instructors and administrators.

Situation #1 You are a mild-mannered instructor of _____ at a college located in the heart of Metropolis. Imagine you visited the people mentioned in the newspaper article below. Today you called Metropolis City Hall to find out where you might get a copy of the building code regulations that apply to handicapped access (Handout). Depending on what kind of skills your course covers, invent an assignment based on these regulations. Use the plan sheet for a prompt list.

Notice Advertisement

R.A.C.E.
Disabled access surveyed

The Richmond Access Committee for Everyone, an organization seeking suitable access to buildings for the disabled, will hold a public meeting April 6, at 7 p.m. in the Richmond municipal offices.

RACE is now conducting a survey to identify housing needs for disabled Richmond residents.

For more information, contact RACE acting chairman Murray Wheaton at 270-6747 or Tim Stevenson 277-9719.

Situation #2: You are a mild-mannered instructor who has picked up the Smith/Potts letter (Handout) while on an industry visit. Invent an assignment based on an idea you get from the letter. The first assignment you might think of is to rewrite the letter in plain English. How might a Business instructor use the letter?

Situation #3 You are a mild-mannered administrator at the College of Metropolis. You are in charge of setting up a two-year curriculum for a pilot program _____.(for example, robotics).

Draft a preliminary questionnaire that could be used in industry interviews to find out what kind of skills your graduates will require. Since we have limited time, your group might decide to concentrate on one subject area or on main topics only. You might use my inventory form (handout)to give you ideas.

Plan Sheet Subject:_____

ASSIGNMENT:

1. What do you want your students to be able to do?

   What is your instructional goal? (purpose of assignment)
   What are the specific objectives of the assignment? (behavioral outcomes)

2. What content do your students need to do this assignment?

   How much do they have already? (previous knowledge)
   How much do you need to supply? (selection of detail)

3. Does your assignment idea meet your instructional goal?

   How will you evaluate the assignment?

Once you have gone through these questions, fill out the attached form.

ASSIGNMENT		
TYPE OF SKILL	ASSIGNMENT OBJECTIVES By successfully completing this assignment you will be able to: 1. 2.	DETAIL/INFORMATION TO INCLUDE
EVALUATION METHOD		

APPENDIX I

Example from Interview Questionnaire

from
Interview with Public Health Inspector

INSTRUCTIONS	☑ processes	☑ equipment	☑ policies	☑ procedures
DESCRIPTIONS	☐ processes	☑ equipment	☑ policies	☐ procedures
Readers/ Audience	☑ technical	☑ non technical	☑ in house	☑ external - Mostly:
	☑ written	☑ oral	☐ supervisors	"general public"
			☐ peers	"Municipal Council"
			☐ subordinates	Kitchen workers

tech. descriptions of test results, regulations for pools, spas, restaurants

Examples of Typical situations

- instruct healthcare workers at Riverview on sanitary foodhandling
- give training courses to BC Ferry workers (Kitchen staff)
- instruct rural citizens on how to install septic tank / apply for permit
- instruct slaughterhouse employees on proper sanitation on "kill Floor"
- instruct daycare supervisors on proper sanitation in daycare centre
- instruct babysitting course for local schoolboard!
- describe conditions for drainage, etc for zoning application hearing / City Council
- instruct swimming pool operators (pool water quality)

Example #2

Cleaning and Disinfection of Wells

The following methods are recommended for the disinfection of wells and springs that have been repaired, newly constructed, flooded or accidentally polluted.

'Found Assignment"

The side walls of the pipe or basin, the interior and exterior surface of the new or placed pump cylinder and drop pipe, and the walls and roof above the water line, where a basin is provided, should be scrubbed clean with a stiff bristled broom or brush and detergent, and then washed down or thoroughly sprayed with water followed by washing or thorough spraying with a strong chlorine solution.

(Rewrite Instructions)

A solution for this purpose may be prepared by dissolving one ounce of 70% high-test calcium hypochlorite made into a paste, or three ounces of 25% chlorinated lime made into a paste or one pint of 5% sodium hypochlorite (bleach) dissolved in 25 gallons of water. The well or spring should be pumped until clear and then be disinfected as explained below

To disinfect the average well or spring basin, mix two quarts of 5% "bleach" in 10 gallons of water. Pour the solution into the well; start the pump and open all faucets. When a chlorine odour is detected at the faucets close each faucet and stop the pump. It will be necessary to open the valve or plug in the top of the pressure tank where provided, just before pumping is stopped in order to allow the strong chlorine solution to come into contact with the entire inside of the tank. Air must be re-admitted and the tank opening closed when pumping is again started. Mix two or more quarts of "bleach" in 10 gallons of water and pour this chlorine solution into the well or spring. Allow the well to stand idle at least 12 to 24 hours; then pump it out to waste, away from grass and shrubbery, through the storage tank and distribution system, if possible, until the odour of chlorine disappears. It is advisable to return the heavily chlorinated water back into the well between the casing and drop pipe where applicable, during the first thirty minutes of pumping to wash down and disinfect the inside of the casing insofar as this is possible. A day or two after the disinfection, after all the chlorine has been removed, a water sample may be collected for bacterial examination to determine whether all contamination has been removed.

A more accurate procedure for the disinfection of a well or spring basin is to base the quantity of disinfectant needed upon the volume of water in the well or spring. This computation is simplified by reference to the following table.

Quantity of Disinfectant Required to Give a Dose of 50 p.p.m. Chlorine

Diameter of Well, Spring, or Pipe in inches.	Imperial Gallons of Water per ft. of water depth.	Ounces of Disinfectant per 10 ft Depth Water		
		70% Calcium Hypochlorite	25% Calcium Hypochlorite	5% Sodium (bleach) Hypochlorite
2	.135	0.02	0.04	0.20
4	.54	0.06	0.17	0.80
6	1.2	.1	.4	1.9
8	2.2	.3	.7	3.3
10	3.4	.4	1.0	5.2
12	4.9	.6	1.6	7.5
24	19.6	2.2	6.0	30.0
36	44.0	5.0	14.0	67.0
48	78.3	9.0	25.0	120.0
60	122.3	14.0	39.0	187.0
72	176.1	20.0	56.5	269.0
96	313.2	36.0	100.0	476.0

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If calcium hypochlorite is used, prepare a thin paste by mixing the required amount of powder in water, and then dissolving the paste in water to the desired dilution.

A flowing well or spring tends to cleanse itself after a period of time. It is advisable nevertheless to clean and disinfect all wells and springs that have had any work done on them before they are used.

Place twice the amount of calcium hypochlorite indicated in the table in a can fitted with a wedge or plug-type cover. Punch holes in the can and fasten a strong string or wire to the can so as to also secure the cover. Suspend the can near the bottom of the well or spring, moving it around in order to distribute the strong chlorine solution formed throughout the water entering and rising up through the well or spring. Addition of the chlorine solution into a garden hose or plastic tubing extended to the bottom of a well or spring would be more satisfactory.

It should be remembered that disinfection is no assurance that the water entering a well or spring will be free of pollution. The cause for pollution if present, should be ascertained and removed. Until this is done, all water used for drinking and culinary purposes should first be boiled.

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SAMPLE #3

*USE FOR ORGANIZING INSPECTION REPORTS

1. SET SCENE & GIVE RATIONALE
2. CHANGE NAMES & ADDRESSES
3. SELECT DETAIL
4. SCRAMBLE ORDER

18 March 81
Follow-up
Items checked OK
NOTE - To install soap dish in staff WC
To install WATTS #8A on kitchen sink
OK for PERMIT

February 18, 1981

61-3

Avenue

Mr.

Avenue
B.C.

SAMPLE FROM INDUSTRY VISIT

Dear Sir:

Re: Diner
Avenue
B.C.

An inspection of the above premises was carried out by our Public Health Inspector, , on Febraury 17, 1981. During that inspection, the following problems were found:

1. Cleaning and Sanitation

The cleanliness on the premises is not satisfactory.

GOOD

(a) The walls and shelves in the walk-in cooler and in the refrigerators are dirty,
(b) The floor in the walk-in are dirty,
(c) Cardboard, which is soaked with food spills, is being used to cover shelves.

All cardboard covering must be removed and cardboard must not be used in the future. The areas mentioned above must be thoroughly cleaned, and more frequent cleaning is required in the future.

2. Foodhandling

(a) Opened tin cans are being used for food storage. Leftover foods must be transferred from the open can into an approved, washable container which must be covered,
(b) Foods are not being handled properly during storage. All foods must be covered and/or wrapped during storage to prevent contamination, and foods must not be stored directly on the floor (minimum 6 inches off the floor is required),

ADDITIONAL SHELVING CONSTRUCTED ~7" OFF FLOOR

.....2

Avenue
B.C.

(c) Cream pies are being stored at room temperature in the dining area display case. All cream-filled and or cream-topped foods must be maintained at less than 40 F at all times until served.

3. Washrooms

(a) The staff washroom is cluttered prohibiting access to the handwashing sink. The area around the sink must be cleared and a soap dispenser must be installed by the sink,

(b) The soap dispensers in the public washrooms are empty. The dispensers must be filled, and the bar soap presently being used must be removed,

(c) The exhaust duct in the staff washroom is not covered. The vent must be provided with a suitable screen.

4. Dishwashing sink connecting

TO INSTALL WATTS #8

A cross-connection exists at the dishwashing sinks. The hosing which is attached to the water tap must be removed; or a back-flow prevention device or a vacuum breaker must be installed.

INSTALL WATTS #8

5. Knife rack

STAINLESS STEEL RACK INSTALLED

The raw-wood knife rack is dirty and is not acceptable for use in a food premises. The rack must be removed or must be cleaned and painted with a light-colored, washable paint.

6. Garbage storage

A cardboard box is being used for garbage storage by the cooking area. The cardboard box must be replaced with a water-tight, non-absorbant refuse container with a close-fitting cover.

X

We expect your cooperation in meeting our requirements immediately. A re-inspection of your restaurant will be carried out in 4 weeks from the date of this letter.

If you have any questions about our requirements, please contact your District Inspector at 939-9261.

Yours truly,

Public Health Inspector

PW/ps

Example #3

Communication

Scribner

INSPECTION OF PETE'S PIZZA

Situation:

Assume you are a Public Health Inspector for the Corporation of the Township of Richmond. On 20 February you received a complaint from a taxpayer about unsanitary conditions at Pete's Pizza.

This morning you inspected the premises at 22265 No. 2 Road in Richmond, discussed the problems with the owner and returned to your office. Since there were a number of infractions, you feel a letter should be sent to the owner. The Chief Public Health Inspector, Mr. Watt, happened to stop you in the hall to ask how things were going in your district, so you got into this conversation:

Mr. Watt: Have we got a problem at Pete's Pizza?

You: Yes--here are my findings (Notes: Attachment #1). The place was a mess. Overall, the sanitation and cleanliness are unsatisfactory.

Mr. Watt: What were the specific problems?

You: Inadequate food storage, poor access to the staff washroom, no soap dispensers, the usual....

Mr. Wat: Sounds like you have the situation under control. Could you please draft the letter to the proprietor? By the way, was the proprietor receptive?

You: Not really. In fact, he left before I could give him a date for re-inspection.

Assignment:

Write the letter to the proprietor, Mr. Pete Lenarduzzi.

You will have to organize your notes and fill in your suggestions for correcting the problems. Your final copy should be easy to read and use. The proprietor will use it to attend to the problems. You will use it on your follow-up inspection.

Due: Beginning of next week's lab

Evaluation Criteria: See Checklist

: YOUR NOTES FROM THE INSPECTION AT PETE'S PIZZA

FILE NOTE OF:

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#83-22-07

ACTION REQUIRED:

- letter report a.s.a.p.
- re inspect in 4 weeks

SUBJECT: Pete's Pizza Inspection

DATE: 83-02-20

☐ For Your Signature ☐ Investigate and Report ☐ Per Your Request ☒ For Your File

- opened tins used for storage / need appr'd container
- floor of walk-in dirty - so are walls + shelves in walk-ins + refrigerators
- not all food in storage is wrapped! some food stored on floor - (min of 6" off floor required)
- cardboard used to cover shelves (soaked with food spills too!)
- exhaust duct in staff washroom uncovered - screen needed for vent
- soap dispensers (public washroom) empty - bar soap must go
- cream pies stored at room temperature in case (should be >40° at all times)
- blocked access to staff washroom sink (no dispenser for soap either)
- raw-wood knife rack dirty (get rid of it or paint it)
- cardboard box for garbage! (get a container)
- dishwashing sink has a cross-connection - the hosing attached to water tap should go or a vacuum breaker or back-flow prevention device be installed.
- began at 10:15; finished at 10:45
- operator impatient to leave / hostile
- no deadline given orally ?
- re-inspect 4 weeks from today

Fold Here for Window Envelope

Fold Here for Window Envelope
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CHECKLIST FOR INSPECTION OF PETE'S PIZZA

Your letter will be evaluated according to these criteria, so be sure to use this list when proofreading your work.

Value of Assignment: 10%

Marks Breakdown:

1. Content & Organization (5 marks)

- organized according to audience and purpose
- achieves purpose
- uses general to specific pattern
- describes conditions accurately, specifically and concisely
- suggests practical alternatives where appropriate
- specifies expected action clearly
- provides clear transitions

2. Mechanics & Style (5 marks)

- has clear, concise sentences and paragraphs
- is free from spelling, punctuation and grammatical errors
- makes appropriate and clear distinction between "musts and wants"
- uses effective presentation strategies (headings, layout)
- makes a good first impression (attractive and easy to read)
- has a firm but polite tone (friendly cooperation?)

NOTE: Late assignments will lose 1 mark per day. Assignments received after the beginning of the lab will be counted as one day late.

COMMUNICATION FOR OCCUPATIONAL HEALTH & SAFETY TECHNOLOGY

Scribner

O'BRIEN LIBRARY INVESTIGATION

ENVIRONMENT CONSULTANTS

You are an industrial hygiene consultant for . . Environment Consultants. Your company was contracted to test some environmental conditions in the technical library of O'Brien Engineering (622 Thurlow, Vancouver).

Apparently, the library staff at O'Brien, led by the Supervisor, Miss Bunberry, complained they felt uncomfortable working in their office environment. You were assigned the job, so you went out this morning to test the lighting levels, temperature, relative humidity, ventilation, levels of carbon dioxide and presence of carbon monoxide.

In a conversation with Miss Bunberry, you found out that the lighting levels had been reduced recently and that the uncomfortable conditions may not be present all the time.

When you returned to the office, you got into this conversation with one of your enthusiastic colleagues, Bud Savetea.

Bud — What was the problem at the O'Brien library?

You — Well, I haven't had time to sift through all the data, but based on my investigation, I don't think there is an easy – to-identify problem. When I talked to the staff they noted that the periods of discomfort fluctuate.

Bud — What were the test results?

You — The lighting levels ranged from 58-100 footcandles at the surface of staff desks to 90-217 footcandles in the reference storage aisles.

Bud — That seems to be in line with the OEB Regs for office work.

You — Yeah, the work appears to be routine office work: stenography, filing, continuous reading and writing tasks. I guess the OEB standard of 70 footcandles is appropriate to apply here.

Bud — Were the desks arranged appropriately for lighting?

You — No problem there.

Bud — What about the higher lighing level away from their seating area?

You — I've thought about that; the higher level is a short distance away; the difference is particularly noticeable

You — when you walk through the room. But this shouldn't cause difficulty with seeing tasks.

Bud — Could be distracting though.

You — Yes, I agree. It may create slight discomfort to have to constantly re-adjust to the different lighting levels. I think they should balance the lighting levels to 70 throughout.

Bud — What about temperature and relative humidity? Did you plot a comfort graph?

You — Yes & the coordinates fell within the area which is considered comfortable. There was a noticeable difference between conditions in the supervisor's office and in the general library area. This difference didn't create a situation which was uncomfortable.

Bud — What about the ventilation?

You — Substantial airflow; total flow was approximately 2460 cu ft per minute passing through the exhaust duct.

Bud — What did the air current tests show?

You — Relatively rapid movement throughout the office in the direction of the exhaust duct.

Bud — Any dead-air sites?

You — 2: 1 in the northeast corner of the reference aisles, & 1 directly in front of the supervisor's office.

The first is too far from the duct to do anything about, but the second is likely due to the way they've furnished the office. A humungous filing cabinet is blocking the entry to the duct, and inhibits air travel from the west portion of the library. I think they should make a space to allow air to travel from the area in front of the supervisor's office to the exhaust duct. I think this would reduce the problem.

But — Any CO^2?

You — (At this point you wish Bud would let you write the report!) The levels ranged from 200-600 ppm

Bud — Not unusual for an office environment.

You — Right. Wouldn't result in discomfort.

Bud Any carbon monoxide?

You None detected.

Bud What are you going to recommend?

you The changes I've suggested and if these don't alleviate the discomfort, then we should monitor the temperature and relative humidity over a longer period with recording instrument.

Bud So you can determine if there's a fluctuation?

You Yip. I don't think temperature and relative humidity are the source but at least then we'd know if conditions fluctuate.

Just before you could explain your other recommendation, Bud's phone rang and he zipped out of your office. At last you can write your report!

Address your report to Shauna O'Reilly, the Personnel Director for O'Brien Engineering. Send copies to Miss Bunberry and to your boss, Jim Blair.

Format: Letter Report

PLEASE WRITE IN PENCIL (DARK LEAD)

Suggestions:

In your groups

Jot down a point form outline.

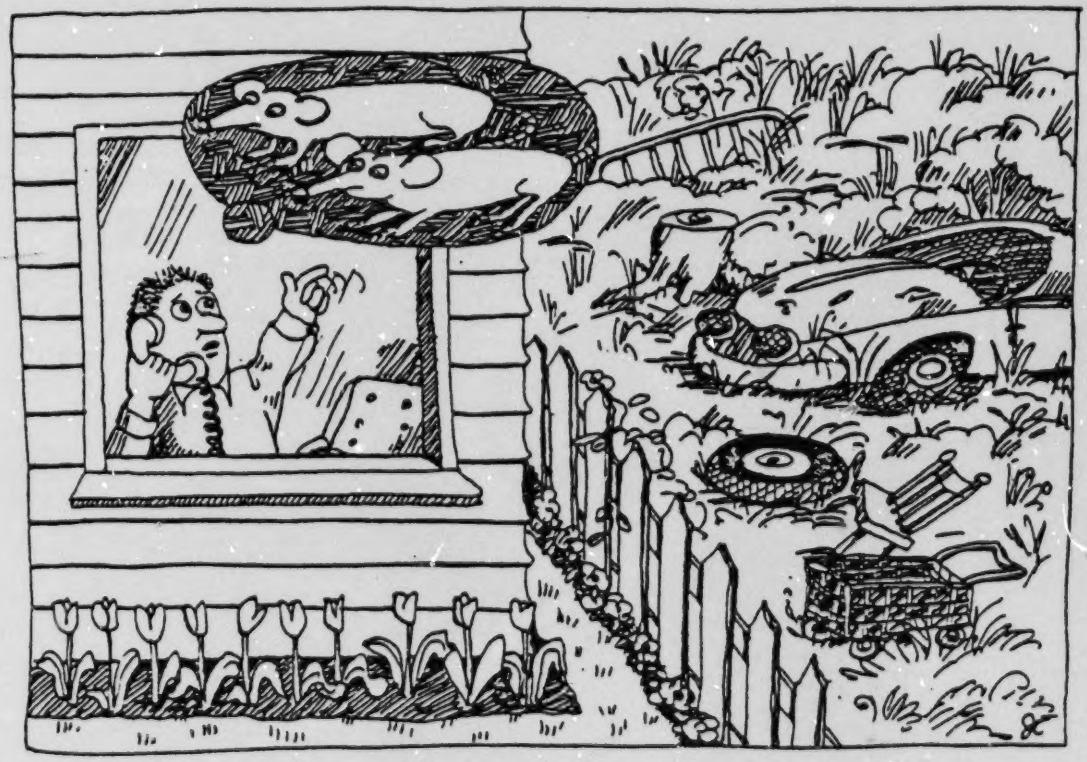
Divide the report into sections and assign each person one section to write.

Put it together as a group. Proofread it as a group.

ASSIGNMENT: OPTION #1

Write a recommendation report based on the following case study.

Due: April 12 Value: 30 marks
Criteria for Evaluation: See Checklist



Communication for Environmental Health Technologists

Communication for Environmental Health Technology

RECOMMENDATION REPORT

Case: The Stats on Rats!

You are a mild-mannered PHI for the City of Metropolis. You've worked in the unit for three years and the Chief often relies on you to make important policy decisions.

Over the last few months (year?) you've been thinking that the unit needs a Vector Control Officer. Currently you don't have one and since you are a B.C.I.T. grad (and took a course in Pest Control & Pesticide Use) you get most of the complaints about rodents (rats!) Last year you handled 490 inquiries about rodents.

At the last meeting of the Lower Mainland Health Inspectors, you got into a discussion about the problem with a PHI from North Van., John Jettsette.

JJ Yes, we've had a Vector Control Program for five years. Since we hired a Vector Control Officer, the number of inquiries increased dramatically.

You Why is that? Extra publicity?

JJ Yes. People know who to call. Before they used to get the bureaucratic run-around from City Hall.

You What are the benefits of having a VCP?

JJ Lots! I can't think of all of them on the spot, but a few are: increased public service, rodent control at the landfill, and increased public education. Are you thinking of proposing a VCP for your district?

You Yes. But I'm concerned our Chief won't go for it, I'm sure he'll balk at the cost. It's expensive, isn't it?

JJ Yes, but I suppose it depends how you look at it. A VCO costs approximately $25,000 if you hired one full time. You don't necessarily have to hire full time. You could, for example, investigate the advantage of contracting out, (hiring someone on a contract basis). A recent grad from B.C.I.T. or S.F.U. might be willing to do it if they have the required qualification (structural Pest Certificate).
Another thing to look at is who is doing the work right now. If a PHI is doing all the rodent work at 30-40,000 a year -- you might save money!

You I haven't really looked at the demand for vector control but based on my experience this past year, I'd say we could justify hiring. Would it be possible to look at your statistics? Your areas are almost identical in population, size, and geography and we both have waterfront and similar business/residential mixed areas.

Maybe I can use your experience when I make my case to the Chief.

JJ Sure. I'll send you a copy of our annual report (Vector Control Program -- see handout). It documents some trends and gives statistics on inquiries, etc., over the last five years in our area.

After you received the report from JJ you discussed the idea informally with your Chief. He seemed interested and even supportive, but it was clear you'd have to present some pretty convincing evidence to justify hiring a VCO. He asked you to analyse the problem and make some recommendations. He asked you to submit a written report of your findings which will include:

- whether a rodent (vector) control program is justifiable
- the benefits of a rodent (vector) control program
- the cost (cost/benefit)
- the advantages/disadvantages of contracting out for a specified time or hiring a permanent staff member at the outset
- what agency should administer the vector control program & why?

The Chief will use your report to present the idea to the local Board of Health, who eventually would decide on the issue.

Remember, the Board is made up of lay people, so you'll have to provide some background information on vector control (what is it, why is it necessary, what does it involve, and is it important for their municipality?).

You may have to do some research on vector control.

Figure 1: Metropolis Rat

ERIC Clearinghouse for Junior Colleges
8118 Math-Sciences Building
University of California

JUL 20 1984